

RoughDeck[®] QC

Quick Clean Floor Scale

Installation Manual



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1.0 Introduction

The *RoughDeck QC Floor Scale* is a hostile environment, stainless steel floor scale customized for food, chemical and other demanding wash-down applications. The *QC*'s exclusive gas-shock design provides easy lifting and soft closing of the top plate, for use during extended under-deck cleaning.

This manual is intended for use by service technicians responsible for installing and servicing the floor scale.



Manuals are available for viewing and/or downloading from the Rice Lake Weighing Systems website at www.ricelake.com/manuals

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Standard Features

- Rugged wash-down design
- Smooth, 304 stainless steel top deck
- Rigid 304 stainless steel tube frame
- 3/16" thick smooth top plate
- 4 stainless steel, welded seal IP67, shear-beam load cells
- Remote stainless steel NEMA Type 4X junction box
- Four adjustable stainless steel SUREFOOT support feet
- 20' of SURVIVOR[®] hostile environment load cell cable to connect an indicator to the junction box
- Manual drop-in-place safety bar

1.1.1 Options/Accessories

- Stainless steel deck with tread-plate
- Floor stand for indicator
- Access ramps to fit most scale sizes
- Pit frames



1.2 Safety

Safety Signal Definitions:



Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.



Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.



Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

General Safety



Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.



Failure to heed could result in serious injury or death.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not use for purposes other than weight taking.

Do not place fingers, toes or other body parts into slots or possible pinch points.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not exceed the rated load limit of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Keep hands, feet and loose clothing away from moving parts.



2.0 Installation

Use this section to unpack and install the scale.

2.1 Scale Location

IMPORTANT *The scale must never be loaded beyond its capacity, even momentarily.*

- Select a site where overweight loads can maneuver easily without crossing the platform.
- Avoid areas where damage could occur from side impacts of wheels or forklift tines.
- Avoid areas where falling objects could cause shock damage.
- Avoid areas where water may damage a scale not meant for a wash-down environment.
- The scale must be level within 1/4". Choose a site where the floor is level to this standard to avoid excessive shimming. The floor may require modification if unable to select an area up to standard.
- For systems where the scale is connected to a 120V AC circuit, the instrument must be directly connected to an earth ground with a ground interface cable of no more than 3 Ω resistance throughout its length.

2.2 Unpack Floor Scale

Remove all packing material and inspect scale for visible damage caused during shipment. Report any damage to the shipping company and Rice Lake Weighing Systems immediately.

CAUTION *Prior to lifting the scale, ensure the top plate is locked by securing the tool-less top plate lock down.*



Figure 2-1. Top Plate Lock Down

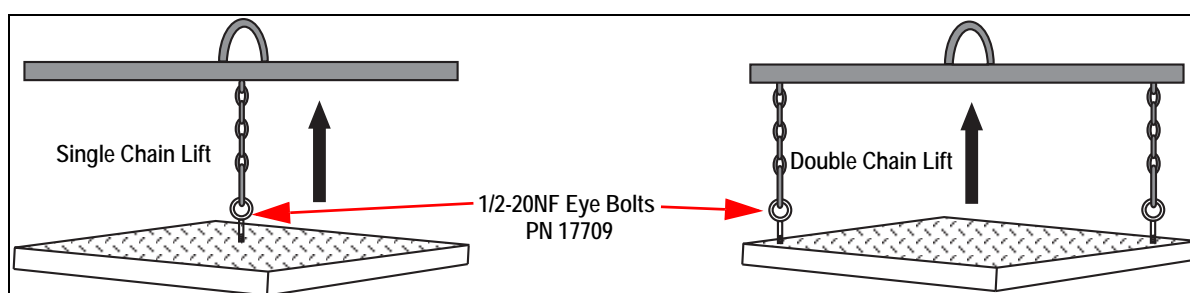


Figure 2-2. Proper Lifting Technique

IMPORTANT

Lift the scale only with a properly designed spreader bar as shown in [Figure 2-2](#). Lifting force must be vertical to avoid bending the eye bolts.

WARNING

Eye bolts must always be inserted into the top of the scale. Lifting should always occur with the top plate facing up and the eye bolts securely attached through the nuts welded to the bottom side of the top plate. Lifting from the bottom of the plate could cause nuts to break loose and the scale to fall.

2.3 Junction Box Installation

Install the junction box in a convenient location, off from the floor, that is within 10' of the floor scale. See the junction box manual.

2.4 Cable Connections

Each scale kit includes 20' of 6-wire cable to connect the scale to an indicator. The interface cable between the scale and the indicator must be protected against crushing, cutting or moisture damage. See [Figure 2-4 on page 4](#).

2.4.1 Junction Box Connections

1. Insert one end of the 20' cable into the junction box.
2. Connect the wires to the indicator terminal as shown in [Table 2-1](#).
3. Pull out excess and tighten the strain relief bushing to hold the cable snugly.

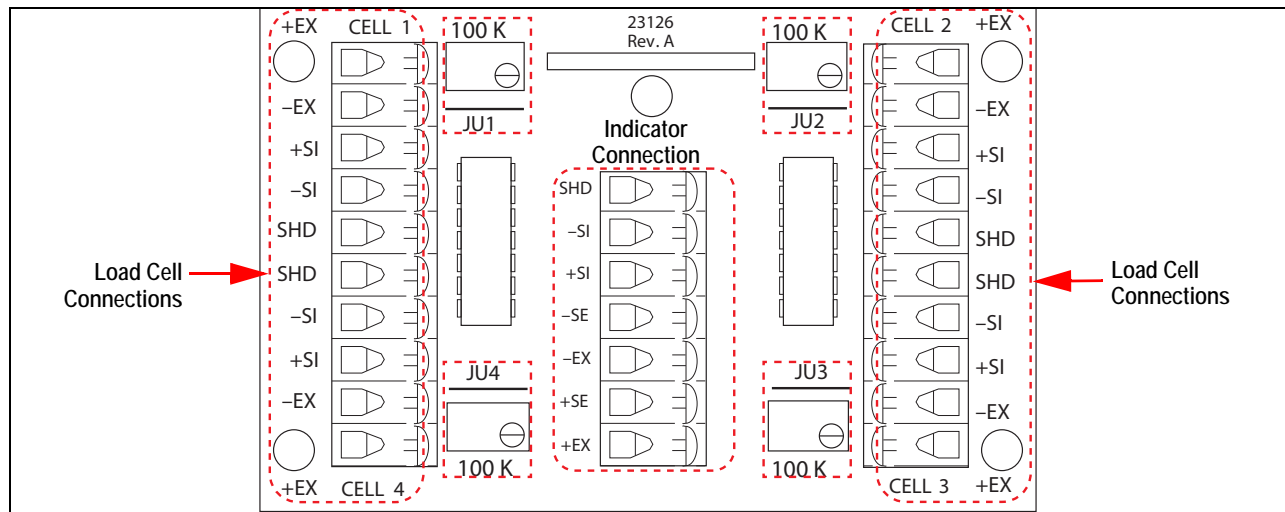


Figure 2-3. Junction Box Connections

Cable Color	Junction Box
Bare	#1 (Shield)
White	#2 (-Signal)
Green	#3 (+Signal)
Blue	#4 (-Sense)
Black	#5 (-Excitation)
Yellow	#6 (+Sense)
Red	#7 (+Excitation)

Table 2-1. Indicator Connection

Cable Color	Junction Box
Red	+Excitation
Black	-Excitation
Green	+Signal
White	-Signal
Base or Clear	Shield

Table 2-2. Load Cell Connections

4. Route the cable to the indicator considering the following:
 - Load cell cables from the scale platform to the junction box should be protected with conduit.
 - Leave a strain relief loop to facilitate future lifting of the scale for servicing or cleaning.
5. When the interface cable is in position, wire the cable to the indicator. See the indicator manual for correct wiring arrangement.

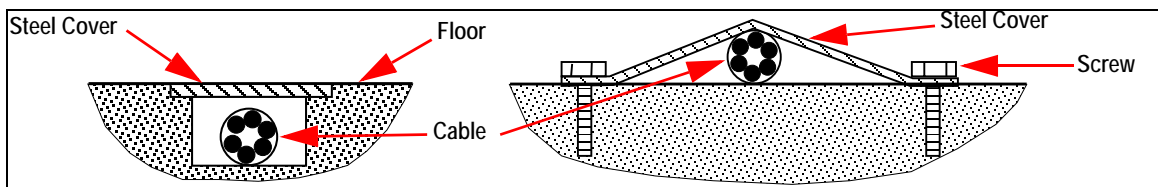


Figure 2-4. Cable Protection

IMPORTANT

If the site has potential dangers, a method of protection is required, such as running the cable in conduit.



2.5 Dimensions

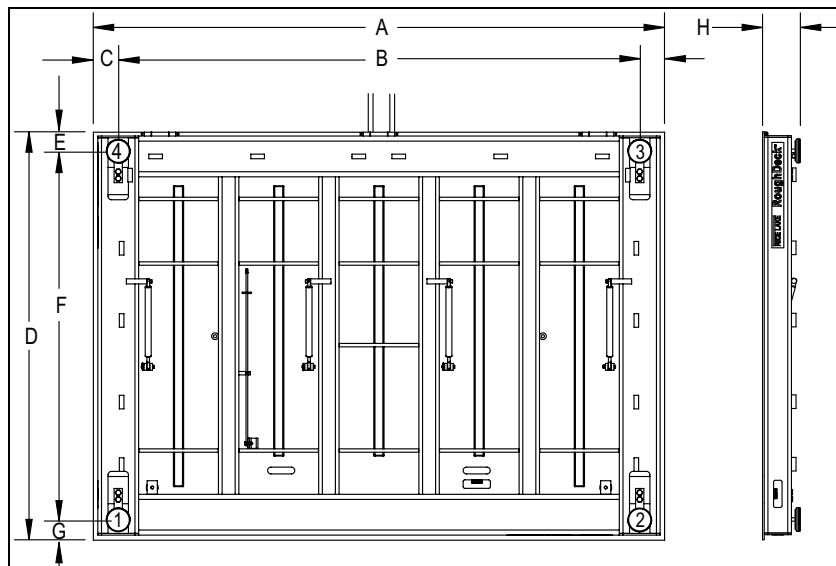


Figure 2-5. Scale Dimensions

Part No.	Scale Size	A	B	C	D	E	F	G	H
50402	2.5X2.5-2K	30.00	24.68	2.66	30.00	2.80	24.21	2.99	3.50
50403	3X3-2K	36.00	30.68	2.66	36.00	2.80	30.21	2.99	3.50
50404	4X4-2K	48.00	42.68	2.66	48.00	2.80	42.21	2.99	3.50
50405	4X4-5K	48.00	42.68	2.66	48.00	2.80	42.21	2.99	3.50
50406	4X4-10K	48.00	42.68	2.66	48.00	2.80	42.21	2.99	4.50
50407	4X5-2K	60.00	54.68	2.66	48.00	2.80	42.21	2.99	3.50
50408	4X5-5K	60.00	54.68	2.66	48.00	2.80	42.21	2.99	4.50
50409	4X5-10K	60.00	53.68	3.16	48.00	2.80	42.21	2.99	4.50
50410	4X6-2K	72.00	66.68	2.66	48.00	2.80	42.21	2.99	4.50
50411	4X6-5K	72.00	66.68	2.66	48.00	2.80	42.21	2.99	4.50
50413	5X5-2K	60.00	54.68	2.66	60.00	2.80	54.21	2.99	4.50
50414	5X5-5K	60.00	54.68	2.66	60.00	2.80	54.21	2.99	4.50
50415	5X5-10K	60.00	53.68	3.16	60.00	2.80	54.21	2.99	4.50
50416	5X7-2K	84.00	76.68	3.66	60.00	2.80	54.21	2.99	5.50
50417	5X7-5K	84.00	76.68	3.66	60.00	2.80	54.21	2.99	5.50
50418	5X7-10K	84.00	76.68	3.66	60.00	2.80	54.21	2.99	5.50

Table 2-3. Dimensions

2.6 Pit Installation – Optional

Each site has different concrete/foundation support requirements. Install the pit in a suitable poured-concrete foundation according to standard construction practices. See [Section 2.6.2 on page 7](#).

- Length of conduit pipe is determined on site.
- Slope pipe for water drainage.
- Tie pit in with existing floor re-bar, if required.
- Ensure underside is supported with concrete or grout (plate is an integral part of the frame).
- Keep pocket free of concrete.
- Coping must sit level in floor to allow proper scale operation.

IMPORTANT

The following statements should be adhered to when installing a pit scale.

- * *Use concrete of minimum yield strength 5,000 PSI or 6-bag mix.*
- * *Allow 7 days to cure (wet concrete periodically during this time).*
- * *Dimensions shown assume firm, stable soil conditions. When soil conditions are not adequate, place foundation at sufficient depth.*
- * *In wet or wash-down applications, the use of hermetically sealed load cells is recommended, and the junction box should be mounted remotely in a dry location.*
- * *Wire mesh to have minimum 0.75" cover bottom and sides.*

2.6.1 Install Scale in Pit

1. Place the scale frame into the pit. It should be seated on the corner plates.
2. Adjust feet as necessary so the platform is level to within 1/4".
3. Feed load cell cables through the conduit. Route on the same side as the hinge. Leave a strain relief loop to allow enough cable for free movement of the scale in the lifted position without tension in the cables.
4. Route the load cell cables through the fittings in the junction box.

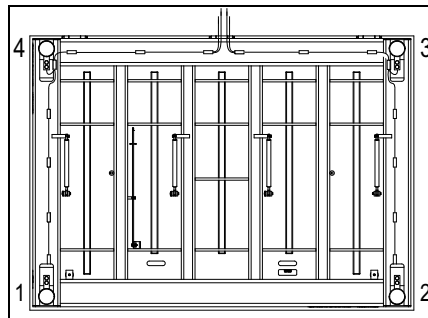


Figure 2-6. Load Cell Corner Numbering

5. Wire the cables to the junction box according to the corner numbering diagram and load cell wiring in [Section 4.2.1 on page 13](#).
6. Coil and store excess cable before hooking up to junction box.
 - Do not cut excess load cell cable.
 - Do not store the excess cable in the scale pit.
7. Make sure the scale opens and closes gently to prevent damage to load cells.

2.6.2 Pit Frame Details

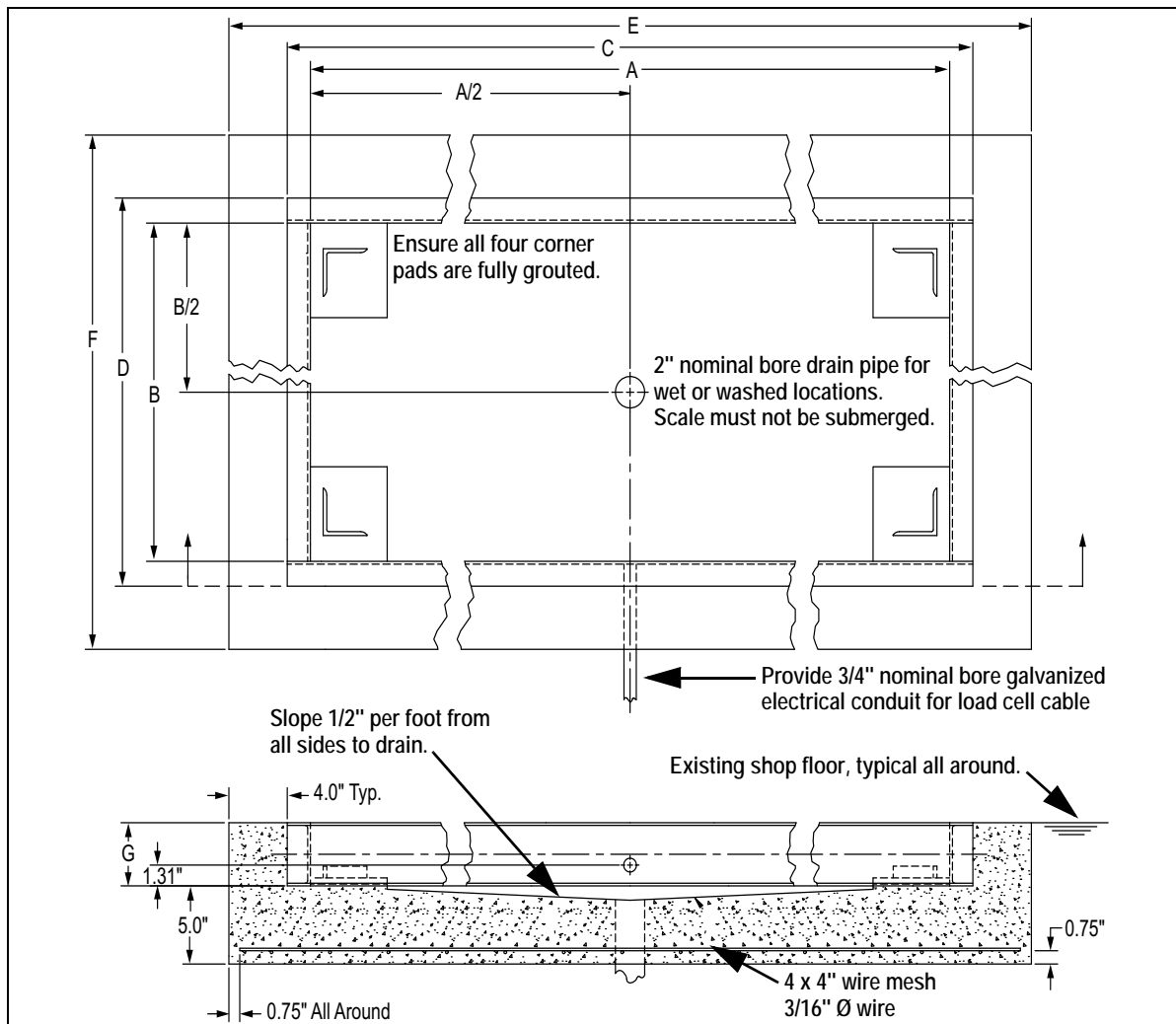


Figure 2-7. Example Pit Installation Drawing

Scale Size	Capacity	A	B	C	D	E	F	G
2.5' x 2.5'	2,000 lb	30.75	31.00	34.75	35.00	42.75	43.00	4.00
3' x 3'	2,000 lb	36.75	37.00	40.75	41.00	48.75	49.00	4.00
4' x 4'	2,000 lb	48.75	49.00	52.75	53.00	60.75	61.00	4.00
4' x 4'	5,000 lb	48.75	49.00	52.75	53.00	60.75	61.00	4.00
4' x 4'	10,000 lb	48.75	49.00	53.75	54.00	61.75	62.00	5.00
4' x 5'	2,000 lb	60.75	49.00	64.75	53.00	72.75	61.00	4.00
4' x 5'	5,000 lb	60.75	49.00	65.75	54.00	73.75	62.00	5.00
4' x 5'	10,000 lb	60.75	49.00	65.75	54.00	73.75	62.00	5.00
4' x 6'	2,000 lb	72.75	49.00	77.75	54.00	85.75	62.00	5.00
4' x 6'	5,000	72.75	49.00	77.75	54.00	85.75	62.00	5.00
4' x 6'	10,000	72.75	49.00	78.75	55.00	86.75	63.00	6.00
5' x 5'	2,000	60.75	61.00	65.75	66.00	73.75	74.00	5.00
5' x 5'	5,000	60.75	61.00	65.75	66.00	73.75	74.00	5.00
5' x 5'	10,000	60.75	61.00	65.75	66.00	73.75	74.00	5.00
5' x 7'	2,000	84.75	61.00	90.75	67.00	98.75	75.00	6.00
5' x 7'	5,000	84.75	61.00	90.75	67.00	98.75	75.00	6.00
5' x 7'	10,000	84.75	61.00	90.75	67.00	98.75	75.00	6.00
6' x 6'	5,000	72.75	73.00	78.75	79.00	86.75	87.00	6.00
6' x 6'	10,000	72.75	73.00	78.75	79.00	86.75	87.00	6.00

Table 2-4. Pit Frame Requirements for Scales

2.7 Safety Bar in Up Position

A safety bar is provided that, when in proper position, allows access to work/wash-down the area under the scale.



Ensure safety bar is in the proper position when working under the top plate.

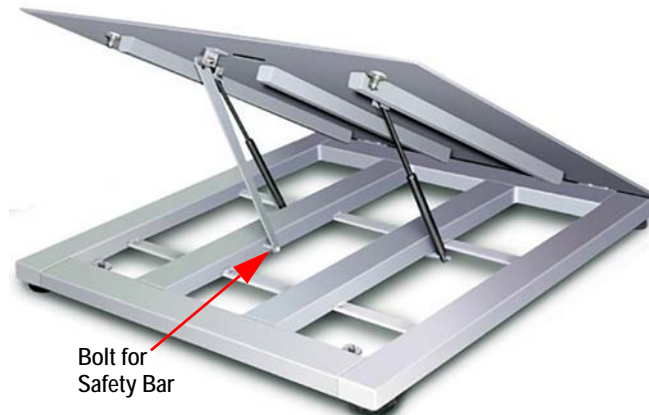


Figure 2-8. Top Plate with Safety Bar in Position

1. Using the hand slot, raise the top.
2. Holding the top plate, bring the safety bar down and place the hook end over the bolt in the scale frame.
3. Release the pressure on the cylinders to allow the frame to rest on the safety bar.



When closing the RoughDeck QC top plate, pneumatic cylinders are engaged most of the distance traveled. However, they disengage prior to closing all the way, therefore the hand slots must be used to guide the plate to its final closed position. Allowing the top plate to free fall, even a short distance, could cause personal injury or damage the scale.



2.8 Replacement Parts

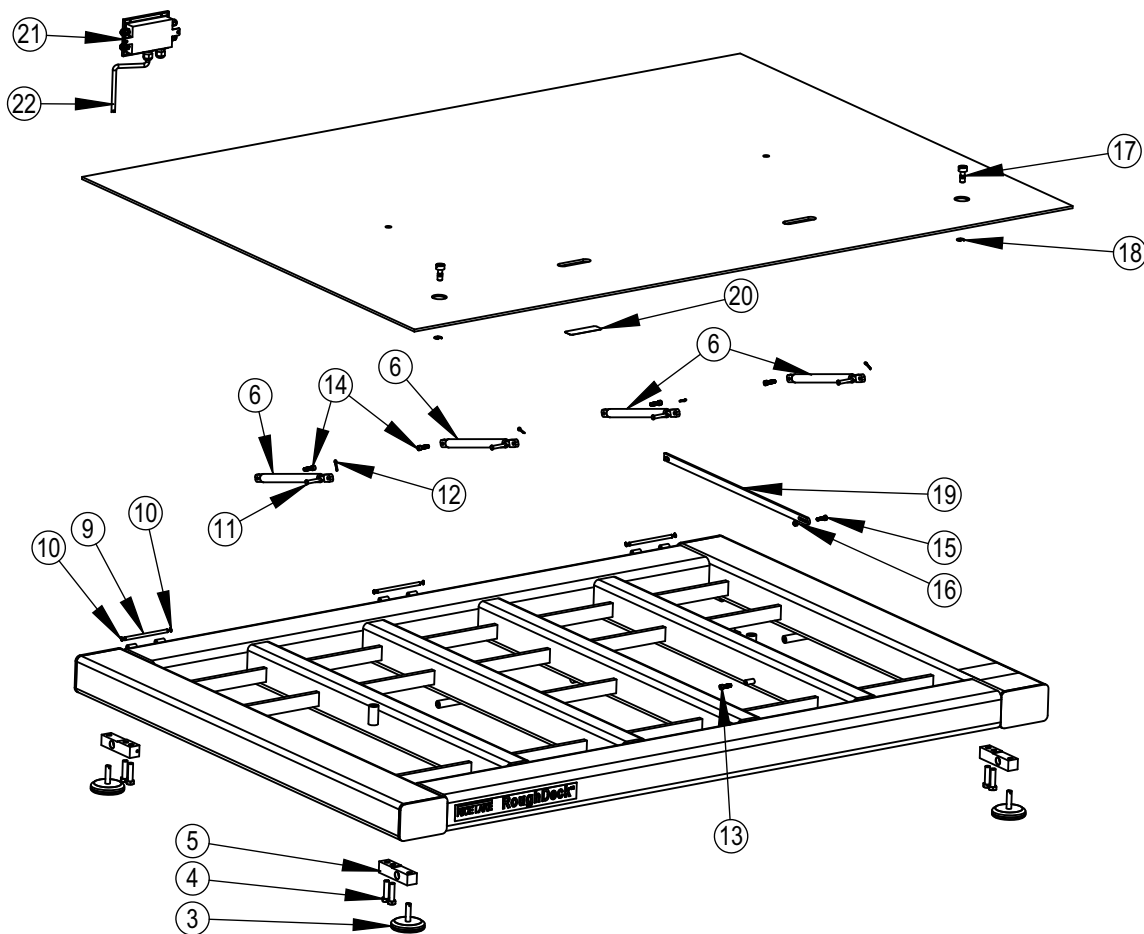


Figure 2-9. Floor Scale Parts Illustrations

Item No.	Description	Qty.
3	Foot, Floor Scale, Surefoot	4
4	Screw, Cap 1/2-20NF X 1.909	8
5	Load Cell	4
6	Spring, Gas	4
9	Pin: Hinge: 5/16" DIA. X 5" Long: SST	3
10	Ring, Retaining 5/16 Shaft	6
11	Pin: Clevis: 5/16 DIA. X 1-1/2 Long: SST	4
12	Pin: Cotter 1/8 X 3/4	4
13	Screw, Cap 5/16-24NFx1 Hex	1
14	Screw, Cap 5/16-18NCx1 Hex Socket SST	4
15	Screw, Cap 1/4-20NCX1 Hex	1
16	Nut, Lock 1/4-20NC Hex SST	1
17	Heavy Duty Corner Pin Lock	2
18	Ring, Retaining 1/2" Shaft	2
19	Safety Latch: Cover	1
21	J-Box,JB4SS 4 Channel	1
22	Cable,6 Conductor 20ft	1

Table 2-5. Repair Parts List

3.0 Adjustments and Calibration

To accommodate minor unevenness, use the scale feet adjust the scale up or down to using the scale feet maintain the proper height and ensure it is level. Raise the scale corner slightly and adjust the feet by hand until all feet are contacting corner pads equally. After completing height adjustments, recheck the levelness of the deck with a level. The deck must be level within 1/4".



CAUTION The scale is heavy so ensure there is adequate assistance to stabilize the scale while adjusting the feet. Use lifting aids and proper lifting techniques to avoid muscle strain.



IMPORTANT When adjusting scale feet, use care to prevent scale foot from bottoming out against the underside of the load cell. Also, the foot stem may be damaged by bending or stripping threads if extended beyond the maximum height adjustment.

3.1 Corner Correction

To calibrate the scale, all load cells need to be adjusted so the output signals are equal. Adjust the signals using the potentiometers in the junction box, a process known as trimming.

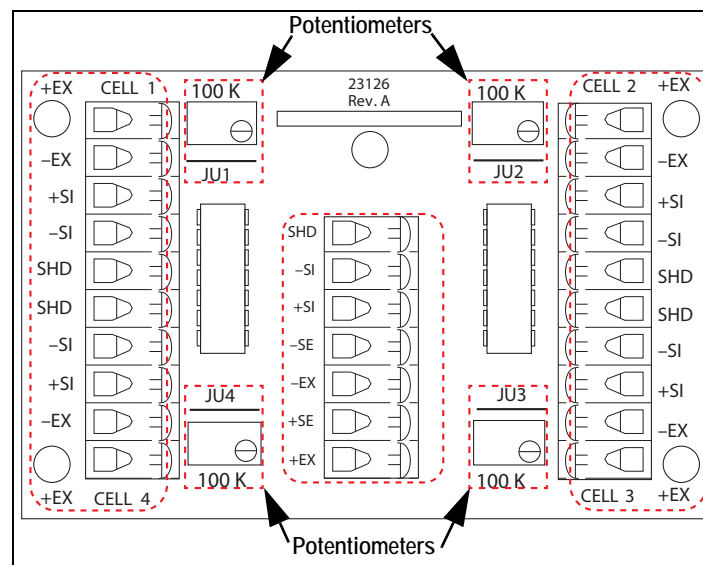


Figure 3-1. Trim Potentiometers

Trim using the following:

1. Remove the junction box cover and identify the load cell terminals corresponding to each corner (CELL 1, CELL 2, CELL 3, and CELL 4).
2. Connect the indicator and calibrate using a test weight. A weight of 25% of scale capacity is recommended.
Example – 500 lbs for 2K-lb models.
3. Ensure there is no weight on the scale and the indicator is at zero.
4. Turn each of the four potentiometers clockwise to increase the reading until there is a clicking sound. This ensures the maximum signal from each load cell.
5. Place the test weight on one corner and record the indicated weight.
6. Repeat the process for each of the other corners.
7. Use the corner with the smallest output as a reference. Place the test weight on one of the other corners and adjust that load cell's potentiometer to match the output of the reference cell.
8. Repeat this procedure with the other high corners.
9. Adjustments are interactive, so adjusting the higher outputs may affect the reference load cell output. Re-zero the indicator and repeat the test until all corners are within $\pm 1\%$ of the test weight being used.



3.2 Calibration

See the indicator operation manual to determine indicator calibration procedures.

It is recommended that the scale be exercised before calibration to be certain that everything is seated.

1. Load the scale to near capacity two or three times.
2. Ensure there is no load on the scale and place the indicator in its calibration mode.
3. Perform a zero calibration.
4. Place test weights equal to 70% – 80% of the scale capacity on the platform. When using several weights, distribute them evenly around the platform.
5. Perform a span calibration.
6. Remove the test weights and check the zero reading.
7. Repeat the calibration process if necessary.

4.0 Service Information

4.1 Periodic Maintenance

Clean the space between the platform side and pit frame and the surface beneath the platform to prevent debris build up.

Use care with high pressure steam wash downs for hermetically-sealed load cells. The steam may not damage the load cells, but the elevated temperatures may cause incorrect readings until the unit cools to room temperature.

4.2 Load Cell Replacement

Order replacement load cells from Rice Lake Weighing Systems.

IMPORTANT

Lift the scale only with a properly designed spreader bar as shown in [Figure 2-2 on page 3](#). Lifting force must be vertical to avoid bending the eye bolts.

WARNING

Eye bolts must always be inserted into the top of the scale. Lifting should always occur with the top plate facing up and the eye bolts securely attached through the nuts welded to the bottom side of the top plate. Lifting from the bottom of the plate could cause nuts to break loose and the scale to fall.

1. Remove foot from the load cell to be replaced.
2. Disconnect load cell cable from the junction box and cut cable ties.
3. Loosen the load cells screws to remove the existing load cell.
4. Pull the cable with the load cell out of the scale and discard.
5. Check that the threaded holes for the load cell screws are free of debris. Use compressed air to blow out holes if necessary.
6. Position load cells with alignment arrows pointed up toward the scale deck and loosely install the hex head cap screws provided.

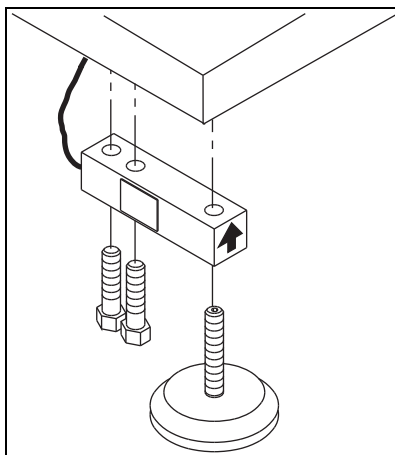


Figure 4-1. Load Cell Replacement.

7. Position the load cell to maintain the dimension.
8. Run the load cell cable through the conduit to the junction box. Route cables near each corner so cables are free from contact with feet. See [Section 4.2.1 on page 13](#).
9. Make a strain relief loop before routing the cables through the conduit.
10. Coil extra cable before it enters the junction box. Do not cut the load cell cables.
11. Pass the end of the load cell cable through the cable fittings in the junction box.
12. Wire the cable to the junction box. See [Section 2.4 on page 4](#).

Corner correction, trimming, and calibration are necessary after replacing a load cell. See [Section 3.0 on page 10](#).

4.2.1 Load Cell Wiring

Connect load cell cables to the junction box using corner numbering and [Section 2.4.1 on page 4](#).

IMPORTANT Do not cut the load cell cables.

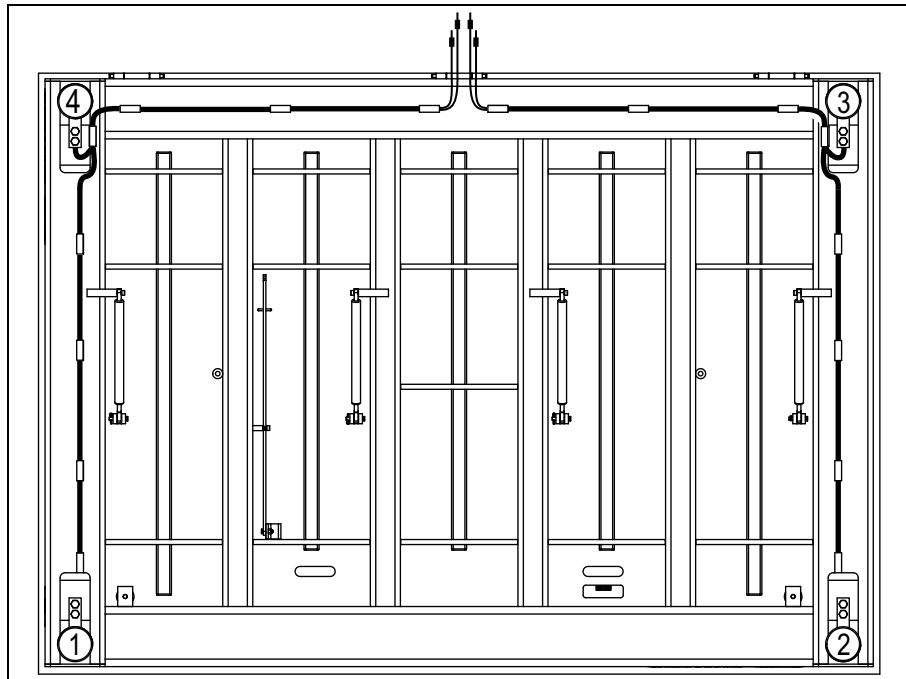


Figure 4-2. Load Cell Cable Layout

4.3 Troubleshooting Guide

Symptom	Probable Cause	Solution
System does not operate/no display	Power disconnected	Check and reconnect
	Indicator fuse blown	Replace fuse, check for cause
	Interface cable cut or disconnected	Repair
	Signal leads incorrectly installed at indicator	Install according to indicator manual
Display stays at zero	Faulty load cell connections	Check cable connections in junction box at indicator
	Faulty indicator	Service the indicator
Erratic weights	Vibration near scale	Remove source of vibration or move scale
	Platform not level to within 1/4"	Level the platform by adjusting feet or shimming
	Load cell or cable water damage	Replace load cell or cable
	Debris under load cells or platform	Clean
	Indicator faulty	Use simulator to test indicator stability; service indicator
Consistently high or low weights	Indicator not properly adjusted to zero	Zero the indicator according to indicator manual
	Platform binding	Adjust clearance for free platform movement
	Indicator not calibrated	Calibrate according to indicator manual
	Faulty load cells	Test and, if necessary, replace load cells
	Feet touching deck's underside	Adjust feet downward to provide clearance

Table 4-1. Troubleshooting Guide.

4.4 Specifications

End Load Capacity:

100% full scale at 2,000 lb and 5,000 lb
80% full scale at 10,000 lb

Cable Length:

20' (6.1 m) (for connecting junction box to indicator)

Remote Junction Box:

Stainless steel enclosure can be located up to 10' away from scale

Welding:

Stitch, consult if continuous is required

Threaded Eye Bolt Hole:

1/2-20 NF located in center of deck for easy lifting

Warranty:

RoughDeck QC weldment five years, load cells two years, all other components one year

Approvals:

NTEP CC 92-001, Class III 5000 d

Load Cell Excitation

Rated Excitation: 10 VDC
Maximum Excitation: 15 VDC





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